CLAIMS

1. Signal processing method in a dental radiology apparatus comprising an intraoral sensor that delivers at least one analog image output signal in response to an exposure of said sensor to x-rays, characterized in that it has the following steps:

- conversion of said at least one analog image output signal into one digital image output signal,

- processing of the digital image output signal to obtain a report indicating the x-ray exposure level that has been used to deliver said analog output signal, the report indicating the exposure level corresponding to an exposure level classified as under-exposure, correct exposure or over-exposure,

- supply of the report indicating the exposure level used.

2. Method according to claim 1, characterized in that the processing of the digital image output signal is based on the extreme amplitude values of said signal that have been previously determined.

3. Method according to claim 2, characterized in that the processing comprises the following steps:

- comparison of one extreme amplitude value or a combination of extreme amplitude values with one or more threshold values,

- according to the result of the comparison(s), supply of the report indicating the exposure level used.

4. Method according to claim 1, characterized in that the processing first includes a step of forming a curve giving the number of pixels of the image signal per gray level.

5. Method according to claim 4, characterized in that the processing includes a step of determining the extreme amplitude values (max, min) of the curve's digital gray levels.

6. Method according to claim 5, characterized in that the processing includes a step of determining a difference Δ = max-min.

7. Method according to claim 6, characterized in that the processing includes a first step of comparison of the difference Δ with a first value threshold1.

8. Method according to claim 7, characterized in that the processing includes a decision step as to the supply of the report indicating the exposure level used or the performance of a second comparison step according to the result of the first comparison step.

9. Method according to claim 7 or 8, characterized in that the report indicating the exposure level used corresponds to an under-exposure level when the difference Δ is less than or equal to the first value threshold1.

10. Method according to claim 7 or 8, characterized in that when the difference Δ is greater than the first value threshold1, then the processing includes a second step of comparison of the maximum value with a second value threshold2.

11. Method according to claim 10, characterized in that the processing includes a decision step as to the supply of the report indicating the exposure level used or as to the performance of an additional test, according to the result of the second comparison step.

12. Method according to claim 10 or 11, characterized in that the report indicating the exposure level used corresponds to a correct exposure level when the maximum value is less than the second value threshold2.

13. Method according to claim 10 or 11, characterized in that, when the maximum value is greater than or equal to the second value threshold2, then the processing includes an additional test step in order to determine the presence or absence of data indicating an overflow in the digital output signal.

14. Method according to claim 13, characterized in that according to the determination of the presence or absence of data indicating an overflow, the processing includes a decision step as to the supply of the report indicating the exposure level used corresponding respectively to an over-exposure level or a correct exposure level.

15. Method according to claims 1 to 14, characterized in that it includes a step of display of the report indicating the exposure level used on a display screen.

16. Method according to claim 15, characterized in that it includes a step of display of the corresponding image signal on the display screen.

17. Method according to claim 15, characterized in that the report indicating the exposure level is displayed in the form of at least one indicator whose position varies according to the report obtained by the signal processing.

18. Method according to claim 17 and one of claims 6 to 14, characterized in that the position of the indicator varies according to the difference Δ obtained.

19. Method according to claims 15 to 18, characterized in that the report indicating the level of under-exposure, correct exposure or over-exposure is displayed in the form of a cursor producing a visual effect that varies at least for certain exposure levels.

20. Method according to claim 19, characterized in that the visual effect is color.

21. Method according to claims 1 to 20, characterized in that the conversion step is performed in an analog-digital converter having an input window adjusted to the dynamic range of the analog signal delivered by the sensor.

22. Dental radiology apparatus comprising an intraoral sensor that is adjusted to deliver at least one analog image output signal in response to an exposure of said sensor to x-rays characterized in that it comprises:

- a conversion unit of said at least one analog image output signal into one digital image output signal,

- a processing unit of the digital image output signal that is adjusted to obtain a report indicating the x-ray exposure level that has been used to deliver said analog output signal, the report indicating the exposure level corresponding to an exposure level classified as under-exposure, correct exposure or over-exposure,

- means of supply of the report indicating the exposure level used.

23. Apparatus according to claim 22, characterized in that the processing of the digital image output signal being performed based on extreme amplitude values of said signal that were previously determined, the processing unit comprises means of comparison that are adjusted to compare one extreme amplitude value or a combination of extreme amplitude values with one or more threshold values.

24. Apparatus according to claim 22, characterized in that the central processing unit comprises the means of forming a curve giving the number of pixels of the image signal per gray level.

25. Apparatus according to claim 24, characterized in that the central processing unit comprises the means of determining the extreme amplitude values (max, min) of the curve's digital gray levels.

26. Apparatus according to claim 25, characterized in that the central processing unit comprises the means of determining a difference Δ = max-min.

27. Apparatus according to claim 26, characterized in that the central processing unit comprises the first means of comparison of the difference Δ with a first value threshold1.

28. Apparatus according to claim 27, characterized in that the central processing unit includes a means of decision as to the supply of the report indicating the exposure level used or the performance of a second comparison step according to the result supplied by the first means of comparison.

29. Apparatus according to claim 27 or 28, characterized in that the report indicating the exposure level used corresponds to an under-exposure level when the difference Δ is less than or equal to the first value threshold1.

30. Apparatus according to claim 27 or 28, characterized in that the central processing unit comprises a second means of comparison of the maximum value with a second value threshold2 that is adjusted to be implemented when the difference Δ is greater than the first value threshold1.

31. Apparatus according to claim 30, characterized in that the central processing unit comprises the means of decision as to the supply of the report indicating the exposure level used or the performance of an additional test, according to the result supplied by the second means of comparison.

32. Apparatus according to claim 30 or 31, characterized in that the report indicating the exposure level used corresponds to a correct exposure level when the maximum value is less than the second value threshold2.

33. Apparatus according to claim 30 or 31, characterized in that the central processing unit comprises the means of determination of the presence or absence of data indicating an overflow in the digital output signal, that is adjusted to be

implemented when the maximum value is greater than or equal to the second value threshold2.

34. Apparatus according to claim 33, characterized in that the central processing unit comprises the means of decision as to the supply of the report indicating the exposure level used corresponding respectively to an over-exposure level or a correct exposure level, according to the determination of the presence or absence of data indicating an overflow.

35. Apparatus according to one of claims 22 to 34, characterized in that it comprises the means of display of the report indicating the exposure level used on a display screen.

36. Apparatus according to claim 35, characterized in that it comprises a means of display of the corresponding image signal on the display screen.

37. Apparatus according to claim 35, characterized in that the report indicating the exposure level is displayed in the form of at least one indicator whose position varies according to the report obtained by the signal processing.

38. Apparatus according to claim 37 and one of claims 26 to 34, characterized in that the position of the indicator varies according to the difference Δ obtained.

39. Apparatus according to one of claims 35 to 38, characterized in that the report indicating the level of under-exposure, correct exposure or over-exposure is displayed in the form of a cursor producing a visual effect that varies at least for certain exposure levels.

40. Apparatus according to claim 39, characterized in that the visual effect is color.

41. Apparatus according to one of claims 22 to 40, characterized in that the analog-digital conversion unit has an input window adjusted to the dynamic range of the analog signal delivered by the sensor.